

Al
a second member having a sealing face with a number of pumping grooves therein, at least a first set of pumping grooves starting proximate a center portion of the sealing face of the second member and extending outward and at least a second set of pumping grooves starting proximate the center portion of the sealing face of the second member and extending inward to direct fluid fed to the center portion of the sealing face simultaneously both inwardly and outwardly from the center portion of the sealing face of the second member to provide a uniform fluid film thickness between the sealing faces of the first and second members when one sealing face cones due to thermal and/or pressure effects.

2. (Once Amended) The rotary seal assembly of claim 1 further including a feeding groove for providing fluid to the center portion of the sealing face of the second member.

A2
15. (Once Amended) The rotary face seal assembly of claim 1 in which the first set of pumping grooves each have a terminal end located inward of an outer portion of the sealing face of the second member.

16. (Once Amended) The rotary face seal assembly of claim 1 in which the second set of pumping grooves each have a terminal end located inward of an inner portion of the sealing face of the second member.

17. (Once Amended) The rotary face seal assembly of claim 1 in which the

A2 first set of pumping grooves and the second set of pumping grooves start adjacent each other at the center portion of the sealing face of the second member.

A3 19. (Once Amended) The rotary face seal assembly of claim 1 in which the first set of pumping grooves curve outwardly from the center portion of the sealing face of the second member.

20. (Once Amended) The rotary face seal assembly of claim 1 in which the second set of pumping grooves curve inwardly from the center portion of the sealing face of the second member.

A4 26. (Once Amended) The rotary face seal assembly of claim 1 further including a holder mounted to one of said first or second members and movable therewith, and a spring which biases the first and second members apart.

27. (Once Amended) The rotary face seal assembly of claim 26 in which there is a gap between the holder and the said first or second member responsive to system pressure which overcomes the spring at a predetermined level.

A5 29. (Once Amended) The rotary face seal assembly of claim 1 further including a holder for one of said first or second members configured to allow said member to cone negatively when the other member cones positively and allows said member to cone positively when the other member cones negatively.

A5

30. (Once Amended) A rotary seal assembly comprising:

a first member having a sealing face with feeding orifices therein;

and

a second member having a sealing face with a number of pumping grooves therein, at least a first set of pumping grooves starting proximate a center portion of the sealing face of the second member and extending outward and at least a second set of pumping grooves starting proximate the center portion of the sealing face of the second member and extending inward to direct fluid fed to the center portion of the sealing face of the second member by the feeding orifices of the first member simultaneously both inwardly and outwardly from the center portion of the sealing face of the second member to provide a uniform fluid film thickness between the sealing faces of the first and second members when one sealing face cones due to thermal and/or pressure effects.

A6

55. (Once Amended) The rotary face seal assembly of claim 30 further

including a holder for one of said first or second members configured to allow that member to cone negatively when the other member cones positively and allows that member to cone positively when the other member cones negatively.

A7

57. (Once Amended) The assembly of claim 56 in which the outwardly

extending pumping grooves start proximate a center portion of the sealing face of the rotor or the stator and extend outward, and the inwardly extending pumping grooves start proximate the center portion of the sealing face of the rotor or the stator and extend